What is claimed is:

1. A method for providing an acoustic test cell with a periodic high intensity acoustic field, comprising the steps of:

(a) supplying a chamber encompassing a volume as an acoustic test cell;

(b) employing an external source to provide a periodic high-intensity acoustic field, said acoustic field having a fundamental frequency determined by its period and an intensity; and

(c) directly coupling said external source to said volume at a selected frequency and intensity to provide in said volume a periodic high-intensity acoustic field.

2. A method according to claim 1,

wherein said method further comprises the steps of:

(d) providing a tuning port connected to said volume to form a Helmholtz resonator comprising said tuning port and said chamber, said tuning port being not directly connected to said external source; and

(e) tuning said acoustic field within said volume with said tuning port.

3. A method according to claim 2, wherein said external source further comprises:

a source providing a source flow of one of air and gas into each said volume; and

a flow modulator for varying said source flow.

4. A method according to claim 2, wherein said external source is an acoustic transducer.

5. A method according to claim 2, wherein step (e) further comprises varying the geometry of said tuning port.

6. A method for an acoustic test cell according to claim 3, further comprising the steps of:

(f) dividing said volume into an input volume and a test volume;

(g) isolating said test volume from said source flow;

(h) connecting said input volume and said test volume by said tuning port; and

(i) exhausting air from said input volume to the exterior through a high acoustic mass unit.

7. A method for an acoustic test cell according to claim 6, wherein said high acoustic mass unit is a long duct.

8. A method for an acoustic test cell according to claim 2 wherein said acoustic field lies in the infrasonic to low-sonic frequency range of 1 Hz to 30 Hz.

9. A method for an acoustic test cell according to claim 2 wherein said volume is preferably 5 m^3.

10. An acoustic test cell apparatus employing a periodic high intensity acoustic field, said apparatus comprising:

(a) a chamber encompassing a volume;

(b) means for generating a periodic high-intensity acoustic field within said volume having a frequency and an intensity;

(c) an external source directly coupled to said volume for providing said periodic high intensity acoustic field; and

(d) a tuning port connected to said volume for tuning said frequency of said high intensity acoustic field within said volume

to a predetermined frequency and intensity said tuning port being not directly connected with said external source.

11. The apparatus of claim 10, wherein:

said test chamber is rigid and airtight;

said acoustic field is continuous; and

said tuner and said volume form a Helmholtz resonator.

12. The apparatus of claim 11, wherein at least one said external source comprises:

(a) a source providing a source flow of one of air and gas into said volume; and

(b) a modulator for varying said source flow.

13. The apparatus of claim 11, wherein said external source is an acoustic transducer.

14. The apparatus of claim 11, wherein said tuning port comprises a variable geometry for tuning said acoustic field.

15. The apparatus of claim 11, wherein said acoustic field lies in the infrasonic to low-sonic frequency range of 1 Hz to 30 Hz.

16. The apparatus of claim 11, wherein said volume is preferably 5 m^3.

17. The apparatus of claim 11, wherein said volume further comprises:

(a) an input volume and a test volume, said test volume being acoustically isolated from both said source flow and said input volume and connected to said input volume by said associated tuning port; and

(b) a high acoustic mass means for exhausting air from said input volume to the exterior.

18. The apparatus of claim 17, wherein at least one of said high acoustic mass means comprises a long duct.

19. A method for an acoustic test cell according to claim 10 wherein said acoustic field lies in the infrasonic to low-sonic frequency range of 1 Hz to 30 Hz.

20. A method for an acoustic test cell according to claim 10 wherein said volume is preferably 5 m^3.

21. An electrical circuit which constitutes an analog of the apparatus of claim 17, comprising:

(a) an air flow modulator circuit providing a continuous field, comprising:

(i) an AC power source providing a voltage source representing a periodically varying gas pressure source, and

(ii) a resistance element representing the flow resistance of a gas flow modulator having said resistance element connected in series with said AC power source;

(b) an input volume circuit in series with said field source, comprising:

(i) an inductance element representing a high acoustic mass in series with a resistance element that represents acoustic losses associated with said acoustic mass,

(ii) a capacitance element representing an input volume in parallel with said high acoustic mass, and

(iii) a resistance element representing acoustic loss in an input volume in parallel with said input volume;

(c) a tuning port circuit in series with said input volume circuit and comprising:

(i) an inductance element providing a tuning port mass, and

(ii) a resistance element representing acoustic loss in a tuning port in series with said inductance element;

(d) a test volume circuit in series with said tuning port circuit and comprising:

(i) a capacitance element representing a test volume, and

(ii) a resistance element representing acoustic loss in a test volume in parallel with said capacitance element;

wherein continuous DC current flow is varied periodically by said flow modulator circuit and is directly coupled with said input volume, said input volume is vented by said high acoustic mass and

is tuned by said tuning port to produce a predetermined AC voltage representing an acoustic signal in said test volume.